

GEORGIA INSTITUTE OF TECHNOLOGY
OFFICE OF CONTRACT ADMINISTRATION
SPONSORED PROJECT INITIATION

Date: May 8, 1980

Project Title: Industrial Energy Extension Service

Project No: A-2614

Project Director: W.G. Moran (subprojects are E-27-686/Cook/TE and
E-19-615/Muzzy/ChE)

Sponsor: Georgia Office of Energy Resources

Agreement Period: From 4/1/80 Until 12/31/80

Type Agreement: Unnumbered contract dtd. 4/1/80 (subcontract under DOE Grant No.
DE FG-44-77CS60212)

Amount: \$331,727 (Includes subprojects E-27-686 for \$25,797 and E19-615 for \$26,945)

Reports Required: Monthly Financial and Progress Reports

Sponsor Contact Person (s):

Technical Matters

Contractual Matters
(thru OCA)

Mr. Ed Bistany
Georgia Office of Energy Resources
270 Washington Street
Atlanta, Georgia 30332
Phone: 656-5176

Defense Priority Rating: None

Assigned to: TAL/ECD ~~XXXXX~~ (School/Laboratory)

COPIES TO:

Project Director
Division Chief (EES)
School/Laboratory Director
Dean/Director-EES
Accounting Office
Procurement Office
Security Coordinator (OCA)
✓ Reports Coordinator (OCA)

Library, Technical Reports Section
EES Information Office
EES Reports & Procedures
Project File (OCA)
Project Code (GTRI)
Other _____

GEORGIA INSTITUTE OF TECHNOLOGY
OFFICE OF CONTRACT ADMINISTRATION
SPONSORED PROJECT TERMINATION

Date: 1/23/81

Project Title: Industrial Energy Extension Service

Project No: A-2614

Project Director: W.G. Moran (subprojects are E-27-686/Cook/TE and
E-19-615/Muzzy/ChE)

Sponsor: Georgia Office of Energy
Resources

Effective Termination Date: 12/31/80

Clearance of Accounting Charges: 12/31/80

Grant/Contract Closeout Actions Remaining:

- ☒ Final Invoice ~~and Closing Documents~~
- ☐ Final Fiscal Report
- ☐ Final Report of Inventions
- ☐ Govt. Property Inventory & Related Certificate
- ☐ Classified Material Certificate
- ☒ Other Transfer any unexpended balances from E-19-615 and E-27-686 to A-2614)

Assigned to: TAL/ECD (School/Laboratory)

COPIES TO:

Project Director
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Georgia Institute of Technology
ENGINEERING EXPERIMENT STATION
ATLANTA, GEORGIA 30332

July 10, 1980

Mr. Ed Bistany
Georgia Office of Energy Resources
Trinity-Washington Building
270 Washington Street
Atlanta, Georgia 30334

Subject: Industrial Energy Extension Program
Quarterly Progress Summary Report
for EES/GIT Research Project A-2614
for Period, 1 April, 1980 through
30 June, 1980

Dear Mr. Bistany:

This summarizes activities on Research Project A-2614 for the second quarter of 1980.

Program Goals for the Quarter

1. Continue technical assistance program and industrial energy audits as requested.
2. Develop and document case studies and special reports on specific technology areas as scheduled.
3. Conduct the following workshops:
 - Waste Heat Recovery, Atlanta, April 3.
 - Industrial Energy Conservation, Macon, April 22.
 - Stone, Clay, and Glass Industry, Atlanta, May 22.
4. Print and mail May issue of the Conservor.
5. Continue work on computer programs for use in evaluating industrial energy conservation measures.
6. Coordinate efforts of ARC energy conservation project with IEES.
7. Continue program promotion.
8. Continue program evaluation.

Accomplishments for the Quarter

1. Statistics for in-plant work by industrial groups:

	<u>General</u>	<u>Food</u>	<u>Textiles</u>	<u>Chemical</u>	<u>Stone</u>	<u>Total</u>
Total Industry Contacts:	70	22	20	8	18	138
New Industry Contacts:	63	12	11	4	15	105
Plant Visits:	9	24	10	8	5	56
New Audit/TA Plants:	9	5	5	3	2	24
Unsolicited Requests:	3	10	2	2	3	20
Reports Sent	2	7	11	0	2	22
Case Studies	0	1	1	1	0	3
Complete Audits	2	2	1	0	2	7

2. Workshop Statistics:

- A. As per Table 1 attached
 - B. Continued planning and preparation for remaining workshops.
3. May issue of Conserver mailed to approximately 6000 industries.
 4. Coordinated tasks of ARC energy conservation project with IEES.
 5. Continued planning for updating sections of the Industrial Energy Conservation Workshop manual.
 6. IEES engineers were involved in various presentations of results and promotional efforts including:
 - Two papers presented at Second Annual Conference on Industrial Energy Conservation Technology and Exhibition, Houston, Texas, in April.
 - One article written for Energy Management column of Textile World Magazine.
 - One energy tip published in Chemical Engineering Magazine, May 5, 1980.
 - IEES presentations made to the Rotary Club of Calhoun, Georgia and the IEEE Subchapter in Warner Robins, Georgia.
 - Article on IEES published in magazine of Georgia Society of Professional Engineers.

7. Implemented use of new workshop evaluation forms and procedures recommended in 1st Quarter meeting with you, DOE regional representatives and Price Waterhouse representatives. Will continue improvement of technology transfer evaluation over the next two quarters.
8. Personnel Changes (see attached manpower chart)
 - Carol Aton is new Technology Transfer Coordinator replacing Bill Moran as Acting Coordinator
 - David Brookstein has left Georgia Tech. Rachel Moore replaces him as Textiles Coordinator. Chuck Carr of the Textile Engineering Department has been added in a staff position in the Textiles Sector.
 - Gary Richardson will be leaving Georgia Tech, effective August 1. Norris Garmon will replace him as General Industry Coordinator.

Milestones Met During The Quarter

1. Evaluated results of IEES program through the second quarter of 1980 (see attachment). Actual energy savings by Georgia industries added to the second quarter, 1980, was 5.59×10^{12} BTU. This gives a cumulative total program savings of 46.7×10^{12} BTU and \$128.1 million (cumulative goal to date is 42.5×10^{12} BTU).
2. Presented three workshops and sent 22 reports to industry.

Major Activities

The major emphasis during this quarter was in three areas:

- Workshops and technology transfer
- In-plant technical assistance and energy audits
- Follow-up and evaluation of program results.

Program interest continues to remain at a high level. We are experiencing the continued high rate of unsolicited requests for our services that has kept us in a backlog position for over a year now. Inflation is taking its toll on our program manpower which is making it

July 10, 1980

very difficult, if not impossible, to maintain program efforts at their present level. Program results to date continue to remain above established goals and we fully expect to surpass our 1980 goal.

Respectfully submitted,

Walter A. Hendrix
Program Coordinator

William G. Moran /
Program Director

WAH/WGM:mro

Attachments

PROGRAM DIRECTOR

Moran

25%

PROGRAM COORDINATOR

Hendrix

50%

GENERAL INDUSTRY COORDINATOR

Norris Garmon
25%

Garmon - 50%
Coursey - 50%
Open - 50%

Wieder - 10%
Co-Op - 33%
Secretary - 16%

FOOD COORDINATOR

Danny Reed
25%

Reed - 25%
Rockett - 50%
R. Moore - 25%

Wieder - 10%
Co-Op - 33%
Secretary - 16%

TEXTILES COORDINATOR

R. Moore
25%

Cook - 25%
R. Moore - 50%
Carr - 25%

Wieder - 10%
Co-Op - 33%
Secretary - 16%

CHEMICAL COORDINATOR

John Muzzy
25%

Sommerfield - 25%
Coursey - 25%
Student Assistant - 100%

Wieder - 10%
Co-Op - 33%
Secretary - 16%

STONE, CLAY, & GLASS COORDINATOR

Larry Banta
25%

Banta - 50%
Hendrix - 25%
Putman - 50%

Wieder - 10%
Co-Op - 33%
Secretary - 16%

TECHNOLOGY TRANSFER COORDINATOR

C. Aton
25%

Wieder - 25%
Ehrhardt - 25%

Co-Op - 33%
Secretary - 16%

State of Georgia
Industrial Energy Extension Service
Program Highlights 8/1/77-6/30/80

- Plant Visits: 521
- Total Plant Contacts: 877
- Audits Completed: 194
- Workshops Conducted: 46
- Workshops Planned for the Remainder of 1980: 5
- Total Workshop Attendees: 1523
- Mailing List: Approximately 6,000 Business and Industry Representatives
- Estimated Actual Energy Savings by Georgia Industry
During Program Existence: 46.7 trillion BTU's
- Estimated Actual Energy Cost Savings by Georgia Industry
During Program Existence: 128.1 million dollars

TABLE 1 - IEES Workshop Conducted and Evaluated

3/1/80 - 4/30/80 (2nd Quarter 1980)

<u>Location</u>	<u>Workshop Date</u>	<u>Topic</u>	<u>No. of Attendees</u>	<u>Total No. of SIC Companies Represented</u>	<u>¹No. of Adjusted SIC Companies by Industry Group</u>				
					<u>General</u>	<u>Food</u>	<u>Textiles</u>	<u>Chemicals</u>	<u>Stone, Clay & Glass</u>
Atlanta	3/4/80	Steam Boiler Operating Efficiency	84	26	4/2	6/3	4/2	1/1	1/1
Atlanta	4/3/80	Waste Heat Recovery	31	12	5/2	1/1	3/1	-	1/1
Macon	4/22/80	Industrial Energy Conservation	13	3	1/1	-	1/1	-	-
TOTALS			128	41	10/5	7/4	8/4	1/1	2/2

¹Adjusted SIC Companies column excludes plants which have received IEES in-plant audits or technical assists.

²Convention adopted here is: No. of plants represented / No. of plants contacted by phone for survey.

Total 3 Workshop Attendance = 128

TABLE 2 - IEES ENERGY SAVINGS ESTIMATE

3/1/80 - 6/30/80 (2nd Quarter 1980)

Actual Annual Savings (10⁹ BTU's)

<u>Industry Group</u>	<u>Audits</u>	<u>Workshops</u>	<u>Basis</u>	<u>Expansion Factor</u> ¹	<u>Expanded Total</u> ²
General	0	87.4	87.4	9.015	875.31
Food	6.3	15.0	21.3	9.015	213.32
Textiles	118.0	291.0	409.0	9.015	4096.14
Chemicals	0	0	0	9.015	0
Stone, Clay & Glass	<u>0</u>	<u>40.5</u>	<u>40.5</u>	<u>9.015</u>	<u>405.61</u>
TOTALS	124.3	433.9	558.2	-	5590.38

¹Expansion Factor = employment ratio x dilution factor. For this period, the employment ratio is 30.05 and the dilution factor is .30.

²Equals basis x (1 - expansion factor)

TABLE 3 - IEES Energy Savings Estimate

8/1/77 - 6/30/80

Actual Annual Savings (10^9 BTU's)

<u>Industry Group</u>	<u>Estimate through 1st Quarter 1980</u>	<u>Estimated 2nd Quarter 1980²</u>	<u>Cumulative Estimate through 2nd Quarter 1980</u>
General	15319.63	875.31	16194.94
Food	1086.32	213.32	1299.64
Textiles	7326.07	4096.14	11422.21
Chemicals	8214.69	0	8214.69
Stone, Clay and Glass	<u>9202.54</u>	<u>405.61</u>	<u>9608.15</u>
TOTALS	41149.25	5590.38	46739.63

1. Reported in March, 1980 memorandum from R. L. Moore to W. A. Hendrix
2. Shown in Table 2 of this report.



Georgia Institute of Technology

ENGINEERING EXPERIMENT STATION

ATLANTA, GEORGIA 30332

October 2, 1980

Mr. Ed Bistany
Georgia Office of Energy Resources
Trinity-Washington Building
270 Washington Street
Atlanta, Georgia 30334

Subject: Industrial Energy Extension Program
Quarterly Progress Summary Report
for EES/GIT Research Project A-2614
for Period, 1 July, 1980 through
30 September, 1980

Dear Mr. Bistany:

This summarizes activities on Research Project A-2614 for the third quarter of 1980.

Program Goals for the Quarter

1. Continue energy audit and technical assistance program for industry.
2. Develop and document case studies and special reports on specific technology areas as scheduled.
3. Conduct the following workshops:
 - Textile Industry, Atlanta, August 5
 - Boiler Efficiency, Macon, August 19
 - Chemical Industry, Savannah, September 18-19
 - Industrial Energy Conservation, Atlanta, September 23
4. Print and mail July issue of the Conserver.
5. Continue work on computer programs for use in evaluating industrial energy conservation measures.
6. Coordinate efforts of ARC energy conservation project with IEES.
7. Continue program promotion.
8. Continue program follow-up and evaluation.

Accomplishments for the Quarter

1. Statistics for in-plant work by industrial groups:

	<u>General</u>	<u>Food</u>	<u>Textiles</u>	<u>Chemical</u>	<u>Stone</u>	<u>Total</u>
Total Industry Contacts:	8	6	20	31	15	80
New Industry Contacts:	5	3	6	14	3	31
Plant Visits:	6	7	8	2	10	33
New Audit/TA Plants:	2	1	6	1	3	13
Unsolicited Requests:	2	1	4	10	1	18
Reports Sent	3	2	5	5	2	17
Case Studies	1	0	0	0	1	2
Complete TA's	0	0	2	9	0	11
Complete Audits	3	2	1	3	1	10

Industry contacts for the Food Group and the General Group are relatively low this quarter due to the fact that there was a transition period for personnel assigned as new co-ordinators in these areas.

2. Workshop Statistics:

A. As per Table 1 attached

B. Continued planning and preparation for remaining workshops.

3. July issue of Conserver mailed to approximately 6000 industries.
4. Coordinated tasks of ARC energy conservation project with IEES.
5. Continued updating sections of the Industrial Energy Conservation Workshop manual.
6. IEES engineers were involved in various presentations of results and promotional efforts including:
 - Article concerning Textile Industry Workshop published in Energy User News, August 11.
 - Two energy tips published in Chemical Engineering Magazine, July 28 and September 22.

- IEES presentation made to the DeKalb County Jaycees.
 - Article in preparation concerning IEES work in the food industry to be published in Processed Prepared Foods.
7. Computer program for analyzing dryers and kilns completed.
8. Personnel Changes:
- Danny Reed has left Georgia Tech. Hank Jackson has replaced him as Food Industry Coordinator.
 - Gary Richardson has left Georgia Tech. Norris Garmon has replaced him as General Industry Coordinator.
 - Bill Moran has left Georgia Tech. Bo Hendrix has assumed all of his IEES administrative duties.
9. Continued implementation of the Price Waterhouse program evaluation method. Since this method is extremely difficult to implement and so far has yielded poor results, an attempt will be made to devise more effective evaluation procedures.
10. Special Reports
- Food Industry: "Waste Heat Recovery from Refrigeration"
- General Industry: "Energy Efficient Process Heating"
- Stone, Clay and Glass Industry: "Efficient Operation of Rotary Kilns and Dryers"
- Textile Industry: "New Innovations in Energy Conservation for the Textile Industry"
- Chemical Industry: "Drying Wood Residues"
- "Energy Conservation for Pulp and Paper Recausticizing"
- "Energy Management and Computers in the Pulp and Paper Industry"

Milestones Met During the Quarter

1. Evaluated results of IEES program through the third quarter of 1980 (see attachment). Estimated program energy savings by Georgia industries for the third quarter of 1980 was 10.42×10^{12} BTU. This gives a cumulative total program savings of 57.2×10^{12} BTU and \$162.6 million. The cumulative energy savings goal to date is 55.6×10^{12} BTU.
2. Presented four workshops and completed 10 audits and 11 TA's.

October 2, 1980

Major Activities

The major emphasis during this quarter continued in the following three areas:

- Workshops and other technology transfer
- In-plant technical assistance and energy audits
- Follow-up and evaluation of program results.

More effort will be placed into program evaluation this quarter. It is hoped that the results derived from this emphasis will not only validate our savings to date, but also provide some direction in the planning of next year's program. A planning document for the 1981 program will be prepared and delivered to you for comments and approval before the end of the quarter.

Respectfully submitted,

Walter A. Hendrix
Program Coordinator

WAH/mro

State of Georgia

Industrial Energy Extension Service

Program Highlights 8/1/77 - 9/30/80

- Plant Visits: 554
- Total Plant Contacts: 957
- Audits Completed: 204
- Workshops Conducted: 49
- Workshops Planned for the Remainder of 1980: 2
- Total Workshop Attendees: 1609
- Estimated Actual Energy Savings by Georgia Industry During Program Existence: 57.2 trillion BTU's
- Estimated Actual Energy Cost Savings by Georgia Industry During Program Existence: 162.6 million dollars

TABLE 1 - IEES Workshop Conducted and Evaluated

5/1/80 - 8/30/80 (3rd Quarter 1980)

					¹ No. of Adjusted SIC Companies by Industry Group				
<u>Location</u>	<u>Workshop Date</u>	<u>Topic</u>	<u>No. of Attendees</u>	<u>Total No. of SIC Companies Represented</u>	<u>General</u>	<u>Food</u>	<u>Textiles</u>	<u>Chemicals</u>	<u>Stone, Clay & Glass</u>
Atlanta	5-22	Minerals Proces- sing Industry	35	15	0/0	0/0	0/0	3/0	10/3
Atlanta	8-5	Textile Industry	25	10	1/1	0/0	4/2	0/0	0/0
Macon	8-9	Boiler Operating Efficiency	26	13	3/1	1/1	3/1	1/1	1/1
TOTALS			86	38	4/2	1/1	7/3	4/1	11/4

¹Adjusted SIC Companies column excludes plants which have received IEES in-plant audits or technical assists.

²Convention adopted here is: No. of plants represented / No. of plants contacted by phone for survey.

Total 3 Workshop Attendance = 86

TABLE 2 - IEES ENERGY SAVINGS ESTIMATE

7/1/80 - 9/30/80 (3rd Quarter 1980)

Actual Annual Savings (10^9 BTU's)

<u>Industry Group</u>	<u>Audits</u>	<u>Workshops</u>	<u>Basis</u>	<u>Expansion Factor</u> ¹	<u>Expanded Total</u> ²
General	5.1	.9	6.0	11.28	73.68
Food	0	.4	.4	11.28	4.91
Textiles	81.2	26.8	108.0	11.28	1326.24
Chemicals	600.0	15.6	615.6	11.28	7559.57
Stone, Clay & Glass	<u>58.5</u>	<u>60.1</u>	<u>118.6</u>	<u>11.28</u>	<u>1456.41</u>
TOTALS	744.8	103.8	848.6		10420.81

¹Expansion Factor = employment ratio x dilution factor. For this period, the employment ratio is 37.6 and the dilution factor is .3

²Equals basis x (1 + expansion factor)

TABLE 3 - IEES Energy Savings Estimate

8/1/77 - 9/30/80

Actual Annual Savings (10⁹ BTU's)

<u>Industry Group</u>	<u>Estimate through 2nd Quarter 1980</u>	<u>Estimated 3rd Quarter 1980²</u>	<u>Cumulative Estimate through 3rd Quarter 1980</u>
General	16,194.94	73.68	16,268.62
Food	1,299.64	4.91	1,304.55
Textiles	11,422.21	1,326.24	12,748.45
Chemicals	8,214.69	7,559.57	15,774.26
Stone, Clay and Glass	<u>9,608.15</u>	<u>1,456.41</u>	<u>11,064.56</u>
TOTALS	46,739.63	10,420.81	57,160.44

1. Reported in June, 1980 memorandum from R. L. Moore to W. A. Hendrix
2. Shown in Table 2 of this report.



Georgia Institute of Technology

ENGINEERING EXPERIMENT STATION

ATLANTA, GEORGIA 30332

January 7, 1981

Mr. Ed Bistany
Georgia Office of Energy Resources
Trinity-Washington Building
270 Washington Street
Atlanta, Georgia 30334

Subject: Industrial Energy Extension Program Quarterly
Progress Summary Report for EES/GIT Research
Project A-2614 for Period, 1 October, 1980
through 31 December, 1980

Dear Mr. Bistany,

This summarizes activities on Research Project A-2614 for the fourth quarter of 1980.

Program Goals for the Quarter

1. Continue energy audit and technical assistance program for industry.
2. Develop and document case studies and special reports on specific technology areas as scheduled.
3. Conduct Food Industry Workshop in Atlanta on October 14.
4. Print and mail November and December issues of the Conserver.
5. Continue work on computer programs for use in evaluating industrial energy conservation measures.
6. Coordinate efforts of ARC energy conservation project with IEES.
7. Continue program promotion.
8. Continue program follow-up and evaluation.
9. Plan 1981 program efforts.

Accomplishments for the Quarter

1. Statistics for in-plant work by industrial groups:

	<u>General</u>	<u>Food</u>	<u>Textiles</u>	<u>Chemical</u>	<u>Stone</u>	<u>Total</u>
Total Industry Contacts:	10	8	23	10	6	57
New Industry Contacts:	3	8	6	1	0	18
Plant Visits:	4	2	5	2	0	13
New Audit/TA Plants:	0	2	0	0	0	2
Unsolicited Requests:	5	1	2	1	2	11
Reports Sent	3	1	11	3	1	19
Case Studies	1	0	2	0	0	3
Completed TA's	1	0	0	1	1	3
Complete Audits	3	1	1	0	1	6

2. Workshop statistics as per Table 1 attached.

3. November and December issues of Conserver mailed to approximately 6000 industries.

4. Coordinated tasks of ARC energy conservation project with IEES.

5. IEES engineers were involved in various presentations of results and promotional efforts including:

- IEES Program was featured in article in November issue of Processed Prepared Foods.
- One article written for Textile World magazine.
- One Energy Tip published in November 17 issue of Chemical Engineering magazine.
- Presentation on IEES program made to Atlanta Gas Light employees at their annual energy conservation update seminar.
- Plans made for presentation at "An Energy Future for Northeast Georgia," a conference sponsored by Northeast Georgia APCD for January 8, 1981 in Athens.

6. Textile Special Report, entitled "Recent Innovations in Energy Conservation for the Textile Industry," completed and printed.
7. Cancelled Food Industry Workshop due to lack of response.

Milestones Met During the Quarter

1. Evaluated results of IEES program through the fourth quarter of 1980 (see attachment). Estimated program energy savings by Georgia industries for the fourth quarter of 1980 was in excess of 14.88×10^{12} BTU. This gives a cumulative total program savings in excess of 72.1×10^{12} BTU for a cost savings of \$211.5 million. The cumulative energy savings goal to date is 72.5×10^{12} BTU.
2. Completed six audits, three TA's and 1 special report.

Major Activities

The major emphasis during this quarter continued in the following three areas:

- Workshops and other technology transfer
- In-plant technical assistance and energy audits
- Follow-up and evaluation of program results.

Special emphasis was placed on program evaluation this quarter in order to validate our savings to date and also provide some direction in the planning of next year's program. A planning document for the 1981 program was prepared and delivered to you for comments and approval before the end of the quarter.

Respectfully submitted,

Walter A. Hendrix /
Program Coordinator

mro

Attachments

TABLE 1 - IEES Workshop Conducted and Evaluated

9/1/80 - 12/31/80 (4th Quarter 1980)

<u>Location</u>	<u>Workshop Date</u>	<u>Topic</u>	<u>No. of Attendees</u>	<u>Total No. of SIC Companies Represented</u>	<u>¹No. of Adjusted SIC Companies by Industry Group</u>				
					<u>General</u>	<u>Food</u>	<u>Textiles</u>	<u>Chemicals</u>	<u>Stone, Clay & Glass</u>
Savannah	9-18	Pulp and Paper Processing	16	3	1/1	0/0	0/0	1/1	0/0
Atlanta	9-23	Industrial Energy Conservation	18	8	2/2	3/3	0/0	0/0	1/1
TOTALS			34	11	3/3	3/3	0/0	1/1	1/1

¹Adjusted SIC Companies column excludes plants which have received IEES in-plant audits or technical assists.

²Convention adopted here is: No. of plants represented / No. of plants contacted by phone for survey.

Total Workshop Attendance = 34

TABLE 2 - IEES Energy Savings Estimate

10/1/80 - 12/31/80 (4th Quarter 1980)

Actual Annual Savings (10^9 BTU's)

<u>Industry Group</u>	<u>Audits</u>	<u>Workshops</u>	<u>Basis</u>	<u>Expansion Factor</u> ¹	<u>Expanded Total</u> ²
General	.9	10.0	10.9	13.0	152.6
Food	0	.4	.4	13.0	5.6
Textiles	140.0	0	140.0	13.0	1960.0
Chemicals	414.0	480.0	894.0	13.0	12516.0
Stone, Clay & Glas	6.3	11.4	17.7	13.0	247.8
TOTALS	561.2	501.8	1063.0		14882.0

¹Expansion Factor = employment ratio x dilution factor. For this period, the employment ratio is 43.34 and the dilution factor is .30

²Equals basis x (1 + expansion factor)

Comparison of Participating Firm (Audits, Workshops, and Flyers)
with Non-participants

Type of Participation	BTU's Saved/Employee	
Audits	2.9×10^7	
Workshops	7.5×10^7	
Flyer	1.6×10^7	
None	5.5×10^5	

	% firms surveyed that have told other firms conservation ideas	% firms surveyed that have been told conservation ideas by other firms
Participants	28	25
Non-participants	4	17

The data gathered during this survey indicates that participating firms have saved significantly more energy than the non-participating firms. Participants are also more willing to share ideas about conservation. Surveyors reported that non-participating firms were not very cooperative. This unwillingness to divulge information undoubtedly reduced the estimate of their energy savings, although it is impossible to determine the extent of that reduction.

TABLE 3 - IEES Energy Savings Estimate

8/1/77 - 12/31/80

Actual Annual Savings (10^9 BTU's)

<u>Industry Group</u>	<u>Estimate through 3rd Quarter 1980¹</u>	<u>Estimated 4th Quarter 1980</u>	<u>Cumulative Estimate through 4th Quarter 1980</u>
General	16,268.62	152.6	16,421.22
Food	1,304.55	5.6	1,310.15
Textiles	12,748.45	1,960.0	14,708.45
Chemicals	15,774.26	12,516.0	28,290.26
Stone, Clay and Glass	11,064.56	247.8	11,312.36
	<hr/>	<hr/>	<hr/>
TOTALS	57,160.44	14,882.0	72,042.44

¹Reported in September memorandum from M. C. Ehrhardt to W. A. Hendrix.²Shown in Table 2 of this report.

State of Georgia

Industrial Energy Extension Service

Program Highlights 8/1/77 - 12/31/80

- Total Industry Contacts: 1014
- Plant Visits: 567
- Audits Completed: 210
- Workshops Conducted: 50
- Total Workshop Attendees: 1643
- Estimated Actual Energy Savings by Georgia Industry During Program Existence: 72.1 trillion BTU's
- Estimated Actual Energy Cost Savings by Georgia Industry During Program Existence: 211.5 million dollars